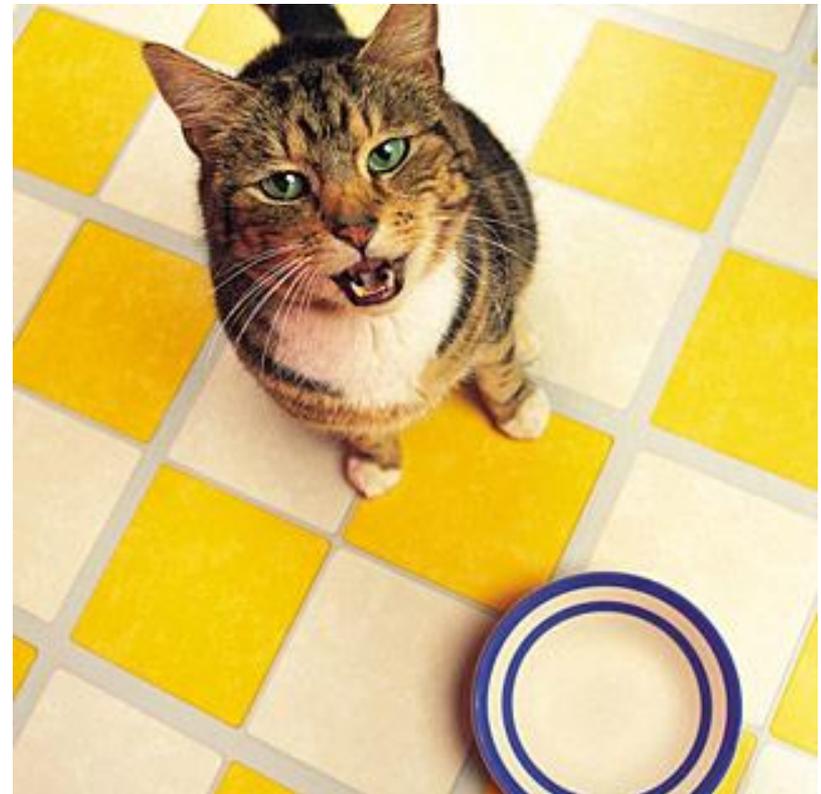


# Journal

- Write down anything you know about classical conditioning and learning.

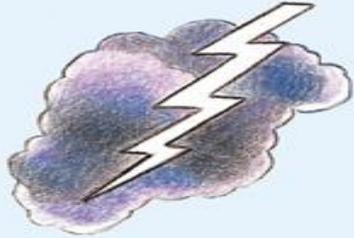
# What is Classical Conditioning?

Learning through association; a tendency to connect events that occur together in time and space



## Two related events:

**Stimulus 1:**  
Lightning

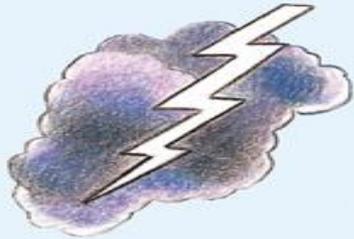


**Stimulus 2:**  
Thunder



## Result after repetition:

**Stimulus:**  
We see  
lightning



**Response:**  
We wince,  
anticipating  
thunder



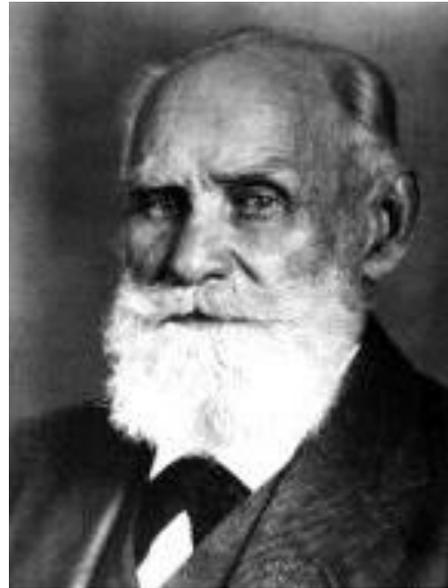
# Classical Conditioning

It all started with:

**Ivan Pavlov**

**Russian  
Psychologist**

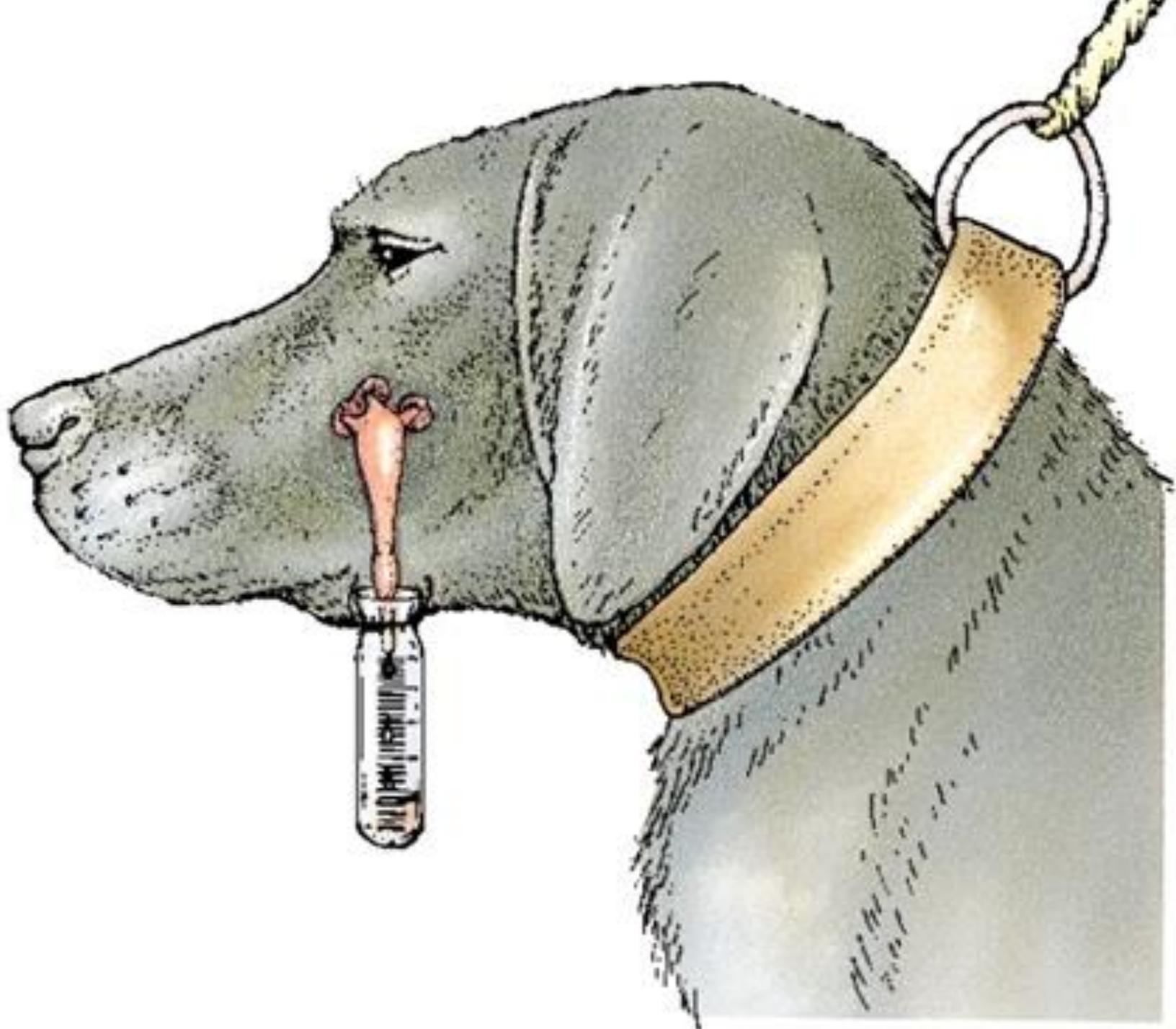
**1849-1936**



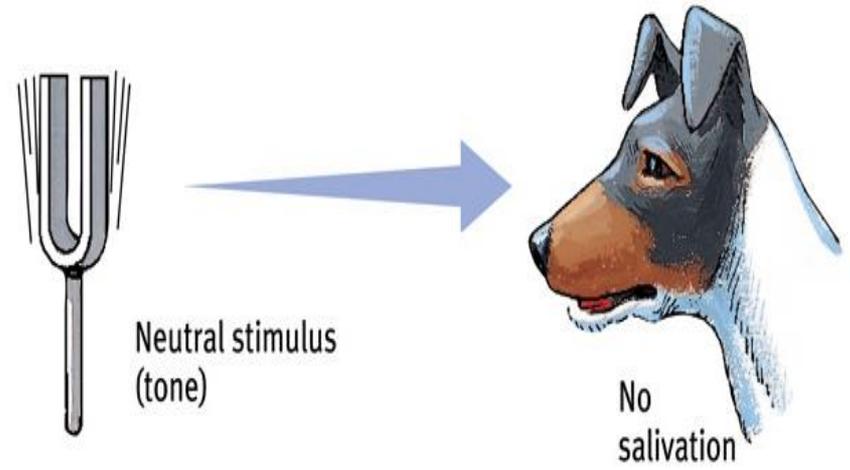
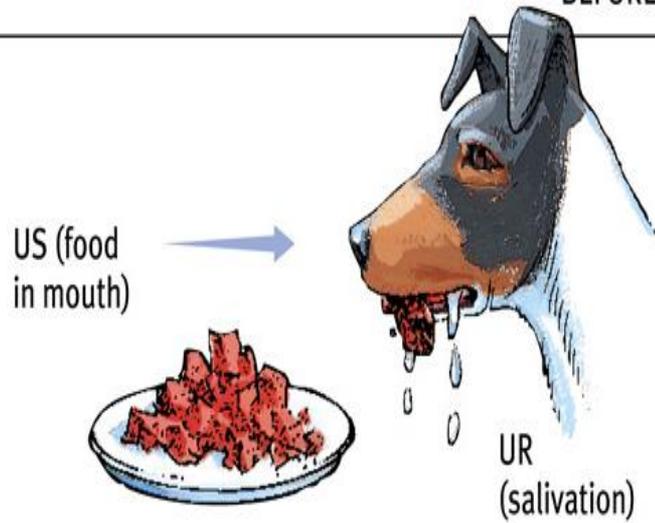
**Discovered classical conditioning on accident,  
was just measuring saliva in dogs**

**A Stimulus elicits a Response**

**Did You Know?** Pavlov won the Nobel Prize in 1904 for his work with studying digestive systems.... years before he even worked on classical conditioning!



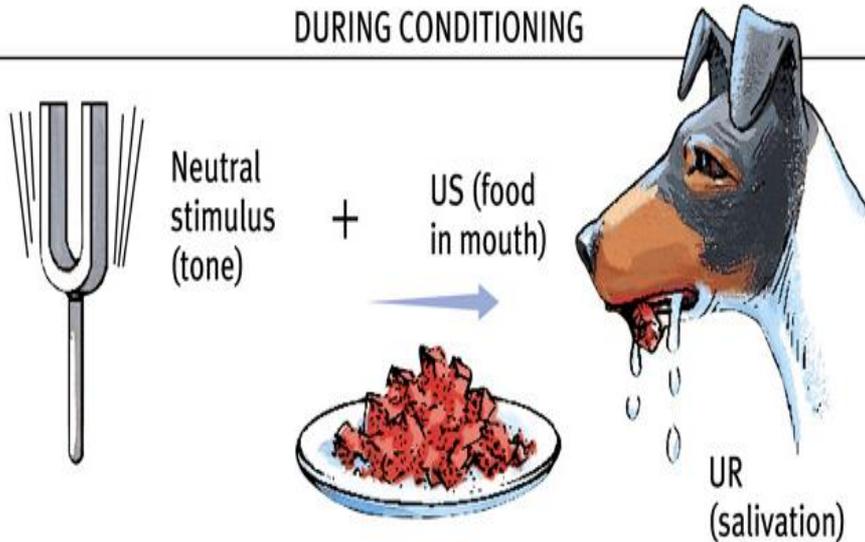
## BEFORE CONDITIONING



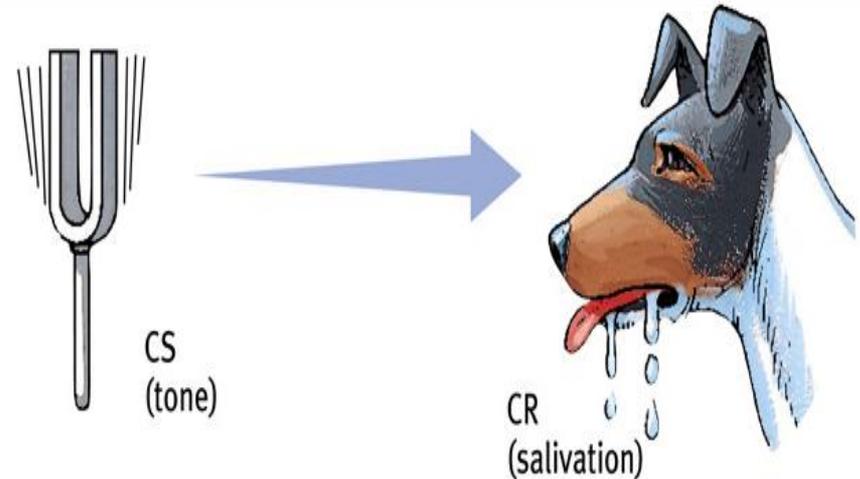
An unconditioned stimulus (US) produces an unconditioned response (UR).

A neutral stimulus produces no salivation response.

## DURING CONDITIONING



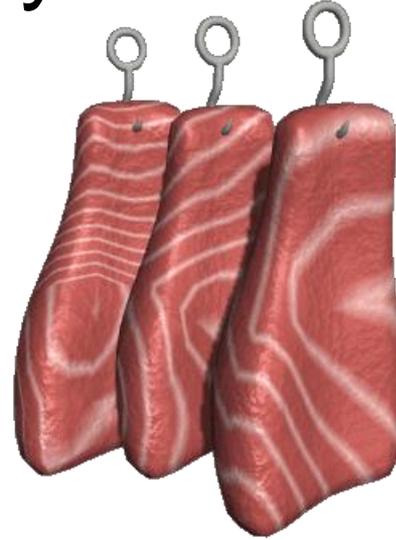
## AFTER CONDITIONING



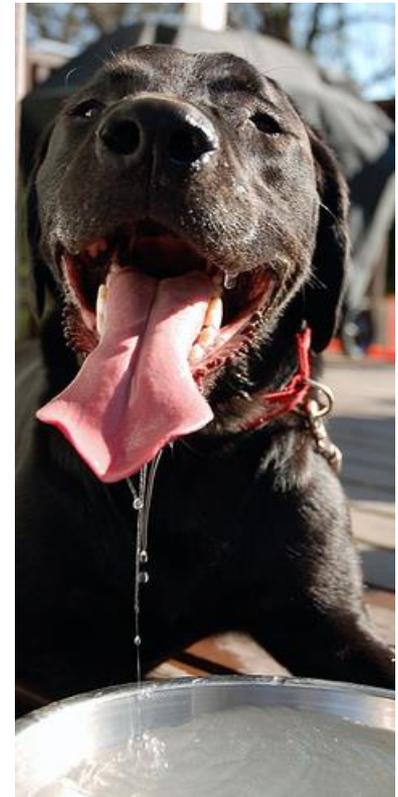
The unconditioned stimulus is repeatedly presented just after the neutral stimulus. The unconditioned stimulus continues to produce an unconditioned response.

The neutral stimulus alone now produces a conditioned response (CR), thereby becoming a conditioned stimulus (CS).

**Unconditioned Stimulus (UCS):** a stimulus that naturally and automatically triggers a response.



**Unconditional Response (UCR):** the unlearned, naturally occurring response to the UCS.



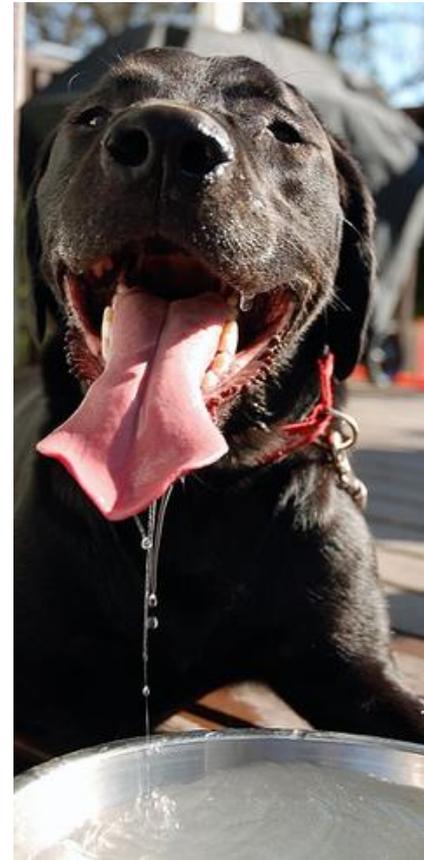
**Neutral Stimulus (NS):** an unrelated stimulus that will become the Conditioned Stimulus



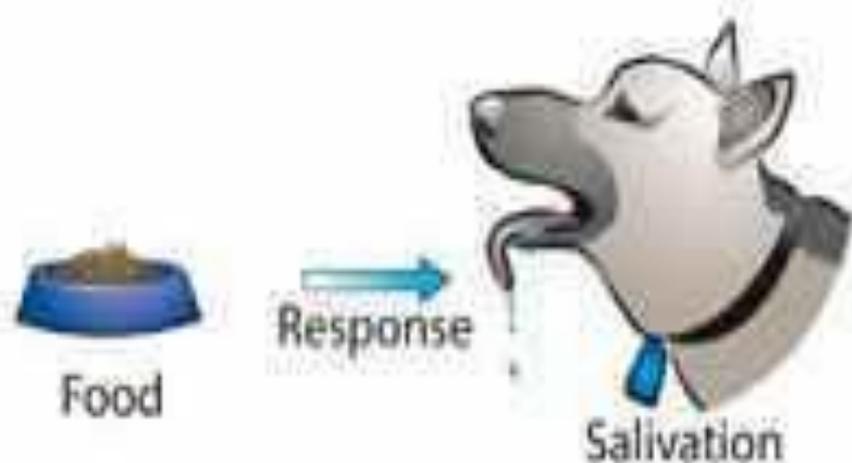
**Conditioned Stimulus (CS):** an originally irrelevant stimulus that, after association with the UCS, comes to trigger a response.



**Conditioned Response (CR):** the learned response to a previously neutral stimulus.



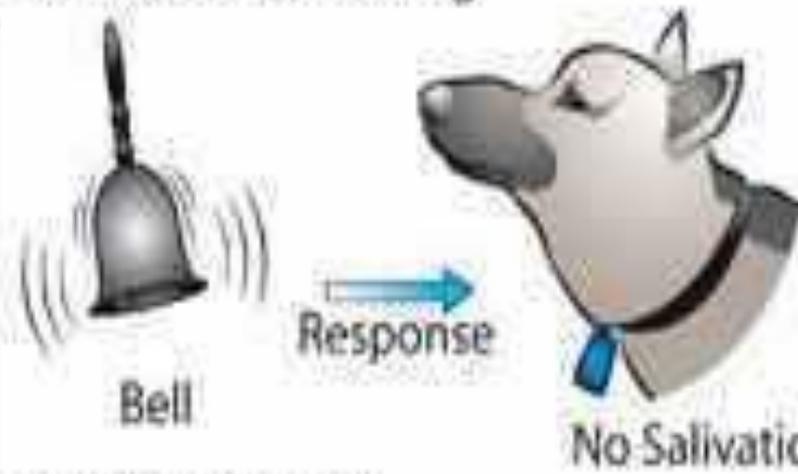
### 1. Before Conditioning



**Unconditioned  
Stimulus**

**Unconditioned  
Response**

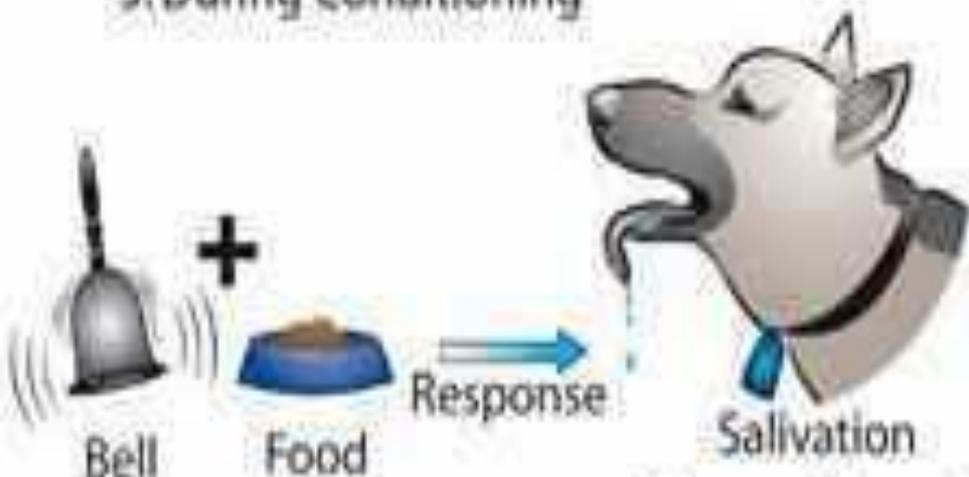
### 2. Before Conditioning



**Neutral Stimulus**

**No Conditioned  
Response**

### 3. During Conditioning



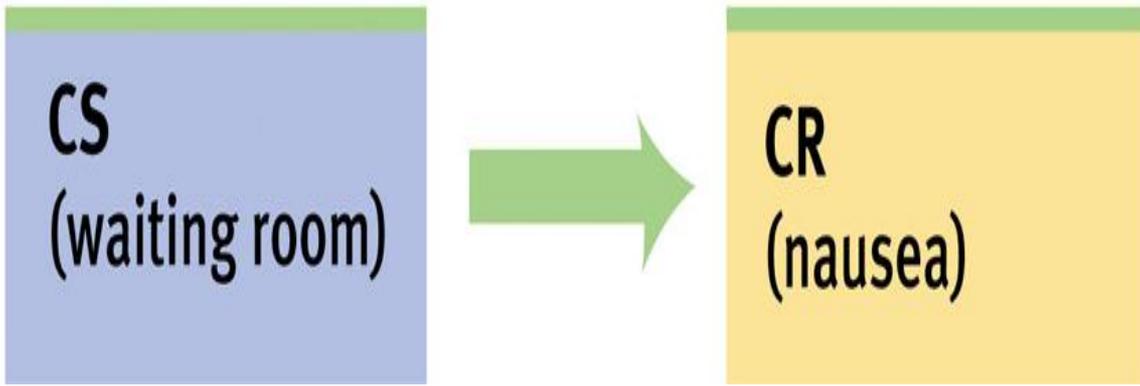
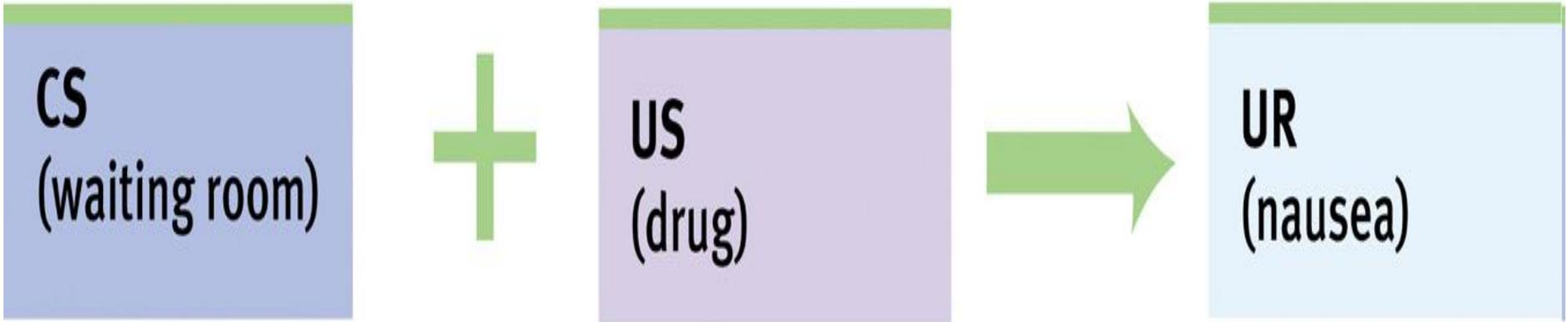
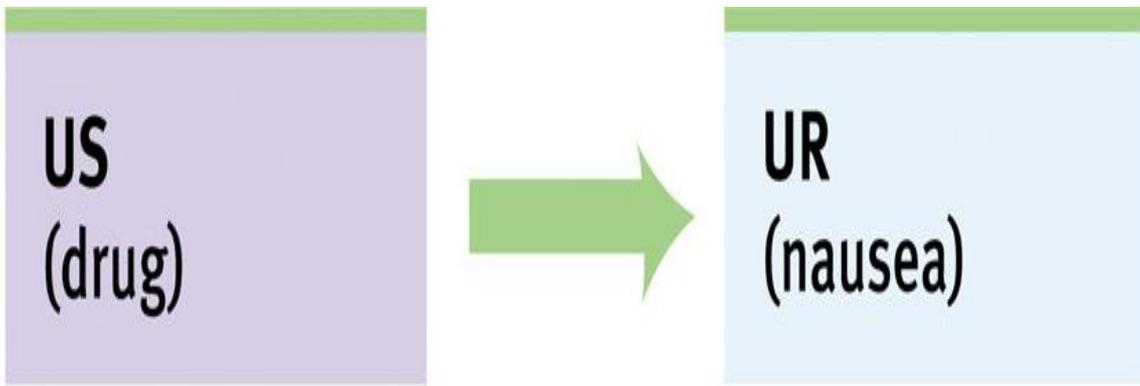
**Unconditioned  
Response**

### 4. After Conditioning



**Conditioned  
Stimulus**

**Conditioned  
Response**



**US**  
(passionate  
kiss)



**UR**  
(sexual  
arousal)



**CS**  
(onion  
breath)



**US**  
(passionate  
kiss)



**UR**  
(sexual  
arousal)



**CS**  
(onion  
breath)



**CR**  
(sexual  
arousal)



Come up with your own examples  
of Classical Conditioning

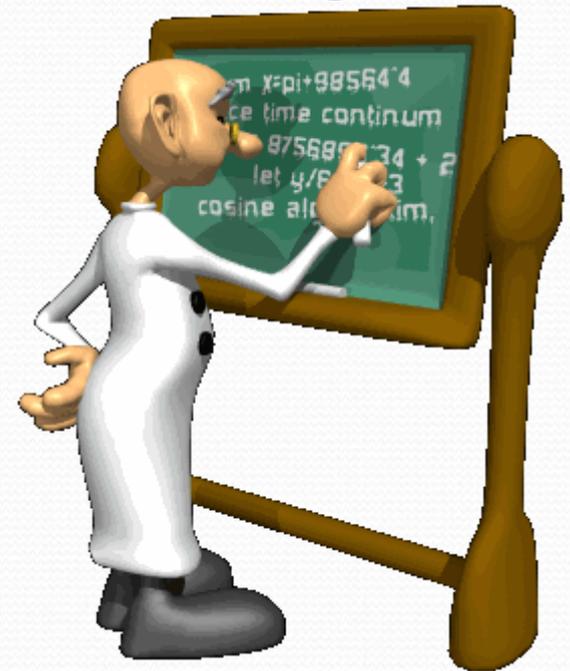
# The Office Clip

- BGSU Classical Conditioning Experiment

# Extensions of Classical Conditioning

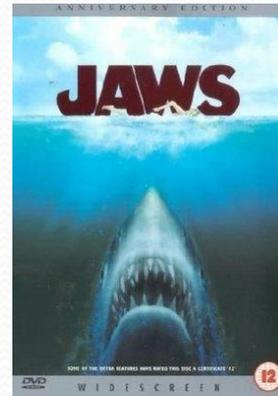
Pavlov spent the rest of his life outlining his ideas. He came up with 5 critical terms that together make up classical conditioning.

- Acquisition
- Extinction
- Spontaneous Recovery
- Generalization
- Discrimination



# Acquisition

- The initial stage of learning.
- The phase in which the neutral stimulus (NS) is associated with the UCS so that the NS comes to evoke a conditioned response



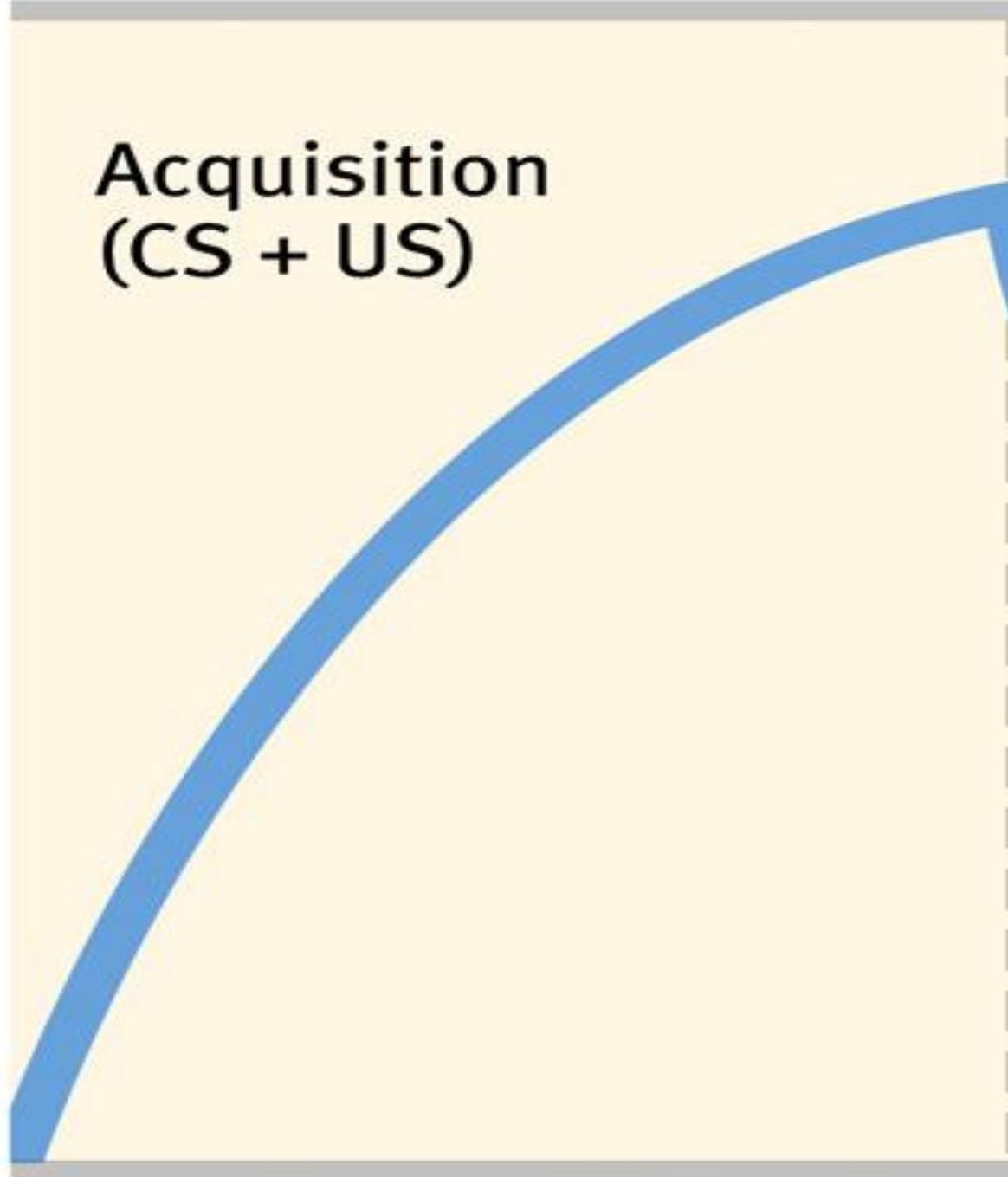
Does timing matter?

- The CS should come before the UCS
- They should be very close together in timing.

Strong



Acquisition  
(CS + US)



Strength  
of CR

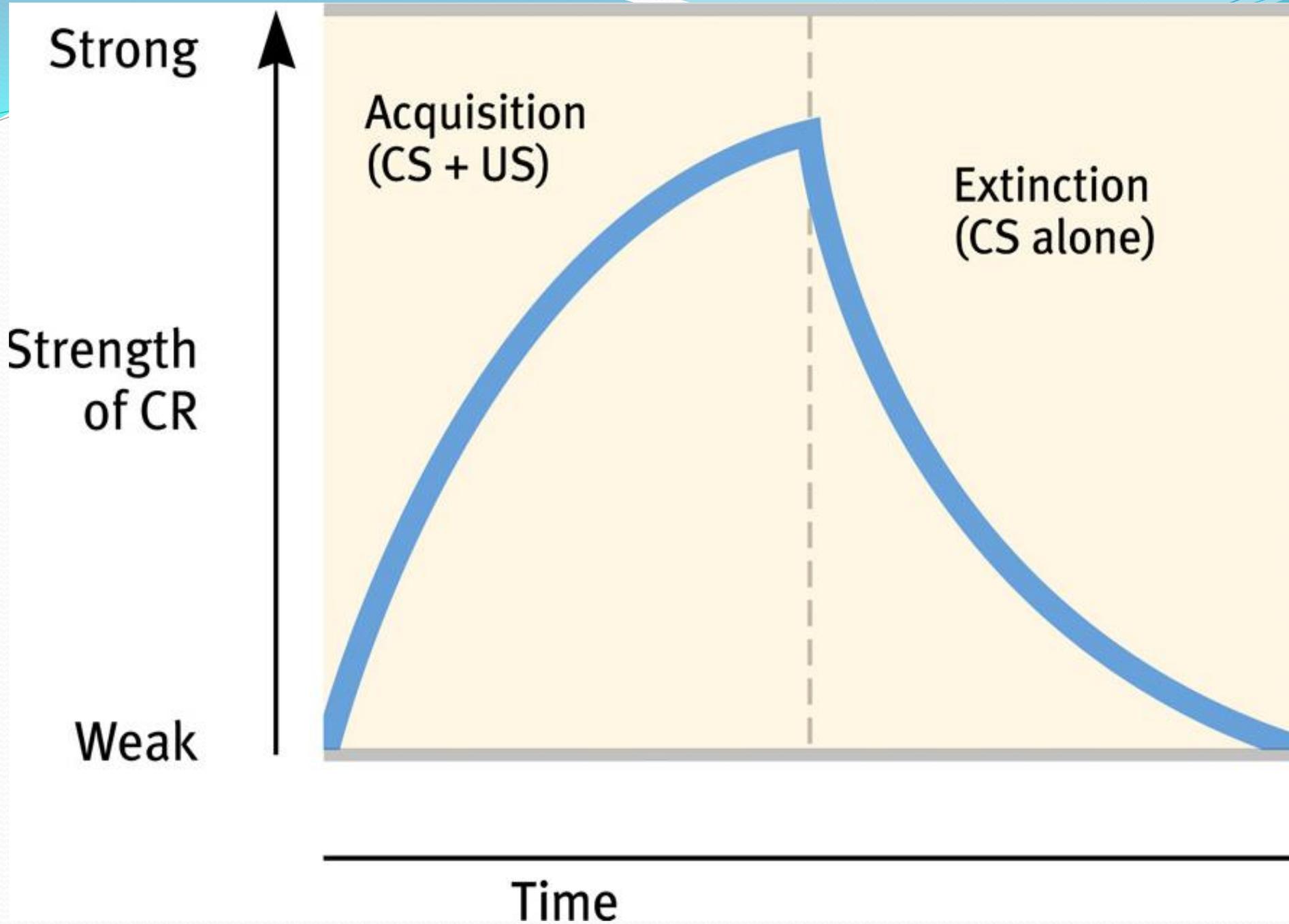
Weak

# Extinction

- The diminishing of a conditioned response.
- occurs when an unconditioned stimulus (UCS) is no longer paired with the CS.



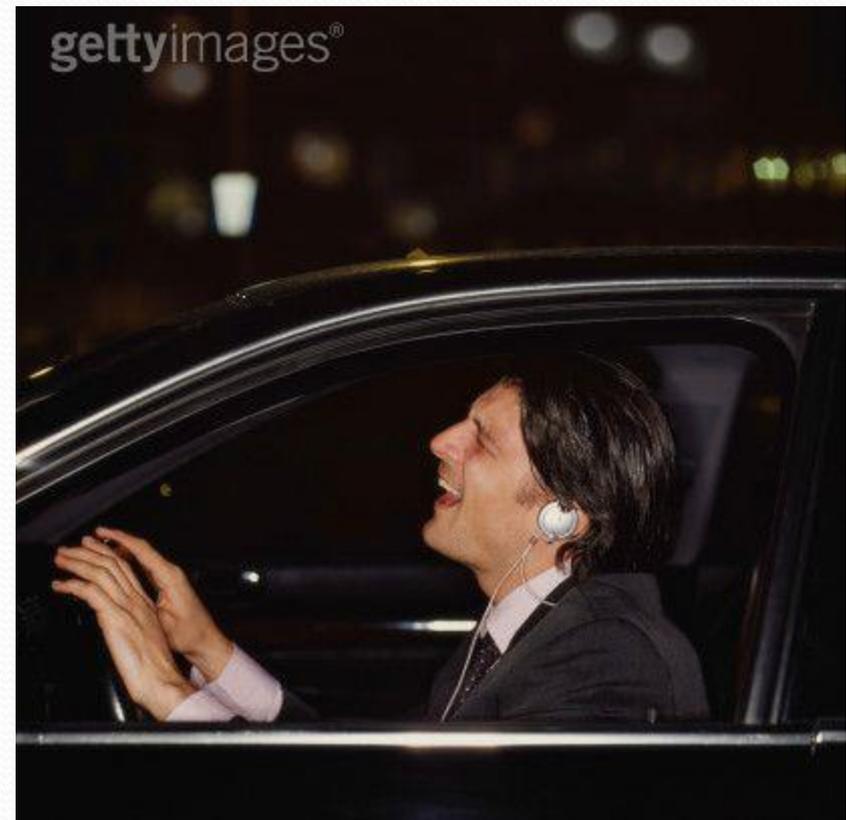
Is extinction permanent?

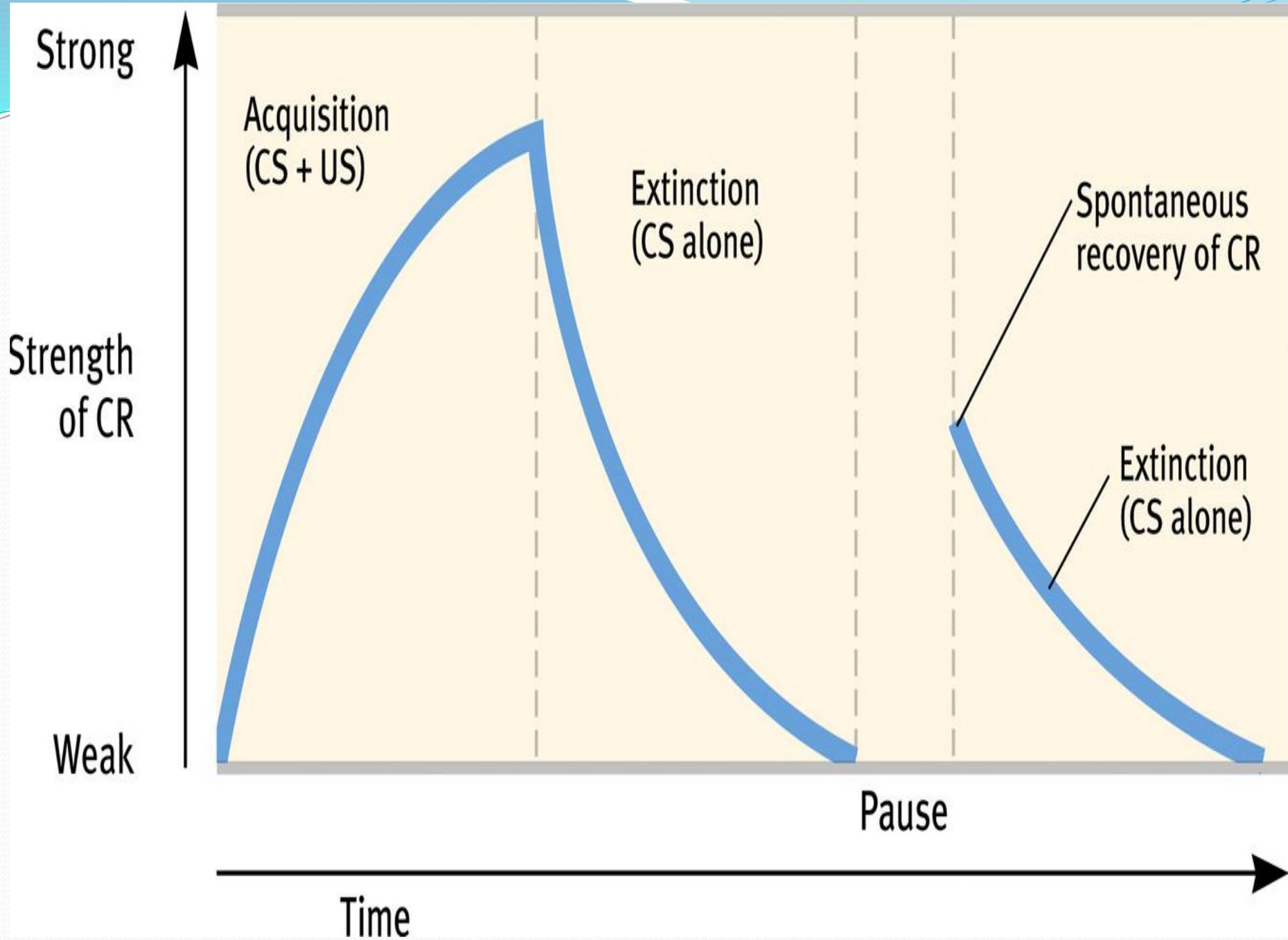


# Spontaneous Recovery



- The reappearance of an extinguished conditioned response after a rest period.





# Generalization

- The tendency, once a response has been conditioned, for stimuli similar to the CS to elicit similar responses.



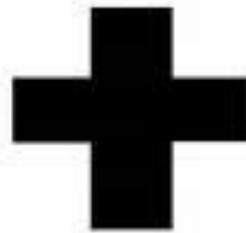
# Discrimination

- The learned ability to distinguish between a CS and other stimuli that does not signal UCS.



# Cognitive Processes of CC

- Does Classical Conditioning work as well on humans as it does on animals??
  - No, because of our cognition and intelligence
  - Our thought processes make it harder to form classical conditioning
    - This is why alcohol therapy doesn't work!!



# Biological Predispositions of CC

- An animal's capacity for conditioning is constrained by its biology
- Certain species are disposed to learn particular associations that enhance their survival
- If we CC a rat to associate radiation with water, would it be most affected by the SIGHT of water, the TASTE, or the SOUND?



# Biological Predispositions of CC

- **John Garcia studies**: researched the effect of radiation on lab animals
- Rats developed aversions to the TASTES but not the sights or sounds
- Makes ADAPTIVE sense: rats rely on sense of taste more to survive





# Little Albert